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ORIGINAL ARTICLE

How large families fare in Germany: Examining child poverty risks and policy solutions

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Abstract

Historically, researchers and policymakers alike recognized the risk of poverty among large families, but family size is often neglected in the contemporary literature. This article revives an examination of the connections between family size and poverty risk for children with a focus on Germany. We take a child-centered perspective by analyzing a sample of 13–14 year-old children from the National Educational Panel Study (NEPS). First, we provide a detailed overview of the welfare and tax policies aimed at large families in Germany. Next, we estimate the poverty risk and prevalence for children in large families (looking at families with 3+ and 4+ children). Finally, we discuss how the policy and socio-economic context interacts with the risk of poverty. We identify that the means-tested social assistance scheme penalizes large families, while the child benefit would only acknowledge higher need of middle-income families with three or more children.

KEYWORDS

Bürgergeld, child benefit, child poverty, citizen's benefit, Germany, large family, social assistance, tax credit

INTRODUCTION

Poverty risk among large families was often central to poverty literature up through the mid-20th century (Kamerman et al., 2003; Myrdal, 1944). It also played a substantive role in policy, as child and family allowances were often linked to families with multiple children (Harris, 1997; Pressman, 2014). The second half of the 20th century saw significant demographic shifts, including fertility decline, increases in divorce, cohabitation, and childbearing outside of marriage, that also shifted research and policy attention to the poverty risk of smaller, lone-parent households (McLanahan et al., 2010; OECD, 2011). Recent decades often saw large family size

neglected in poverty literature and social policy responses across high-income countries. This study fills this gap by examining the contemporary economic situation of children in large families in Germany, while also highlighting broader international social policy considerations.

This article examines the connections between family size, poverty risk for children, and child-related social transfers in Germany today. Primarily we aim to identify the current prevalence of large family size and any associated child poverty risk of growing up in a large family. In addition, our central research aims in the social policy context are two-fold: (1) to understand how the current system of child-related income supports recognize children in large families, and (2) examine the contributions

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of additional demographic, labor market, and asset-related factors on child poverty in large families.

In this analysis, we define large families as those with at least three co-resident children. Bradshaw et al. (2006), in an analysis of the United Kingdom, argues that a “pragmatic” definition of a modern large family could be set at either 3 or 4 co-resident children. The 3-child threshold has support in the international literature (Cantillon & Van den Bosch, 2002; Curran, 2021; Kemp et al., 2004; Willits & Swales, 2003) and in the recent German literature (Bujard, Brehm, et al., 2019; Bujard, Lück, et al., 2019). While we employ the 3+ child threshold as our minimum demarcation for large families, we also report results for 4+ child families. Similar to Bradshaw et al. (2006) and in the context of resource dilution, we argue that families with 4+ children may also face elevated practical challenges that families with 3 children do not—for instance, a standard car does not fit a 4-child family and apartments are often designed for smaller families—which requires further in-depth analysis to understand disadvantage among the large family population.

Central to poverty risk among large families is resource dilution (Becker, 1960; Blake, 1981; Lawson & Mace, 2010). Economies of scale notwithstanding, each additional child reduces the income and other resources available to each family member. In contrast, policy attention has tended to either incentivise births or engage in punitive action against families with multiple children on low incomes. On one side of the policy spectrum, countries promote pro-natal policies for demographic reasons, often intertwined with an ideological agenda (Herke, 2024). Other countries specifically target family size as a disqualifying criterion for means-tested social assistance (e.g., Chzhen & Bradshaw, 2024; Gallo et al., 2024). Family caps, for example, were baked into the mid-1990s welfare reform efforts in the United States as some states barred cash assistance claimants from receiving additional benefits when a child was born. A repeal movement has lifted a number of these caps over the past two decades, though some caps in some states remain in place (Thomhave, 2018). Since 2017, the United Kingdom instituted a two-child limit plus an overall family benefit cap. In both examples, these punitive policies target families with low incomes, effectively sanctioning them economically for having additional children, with no substantive impacts on fertility but resulting in increased poverty (Reader et al., 2022; Romero & Agénor, 2009).

Compared to countries like the United States and United Kingdom, Germany provides more generous social insurance and social assistance for families with children and has long seen lower levels of child poverty

Key Practitioner Message

- One in four children grow up in large families, about twice as much as in single parent families.
- The poverty risk of families with four or more children is at 30%.
- The social assistance scheme offsets the increased child benefit rates for large families and, therefore, increases the risk of poverty.

(Bahle & Krause, 2017). Historically, the pronatalist agenda of the Nazi regime supported and awarded families with at least four children (Stephenson, 1979), but this legacy makes fertility-promoting policies, particularly around large families, a political anathema. In recent decades, Germany is rather associated with relatively low fertility and small family sizes compared to other OECD countries (OECD, 2011). Similar to other high-income countries, Germany has seen an increase in single-parent households, as well as an increased focus on these households as a primary economic risk factor for poverty among children in research and policy (Corak et al., 2008).

Part of the under-acknowledgement of large family size as a potential modern-day poverty risk factor may be that large family size is often overlooked. Yet, recent research indicates that large family size remains a fairly common part of children's family circumstances in Germany and elsewhere (Bujard, Brehm, et al., 2019; Curran, 2019). Family size is often described in terms of the household, but this can understate the prevalence of large family size for children. In other words, the prevalence of large families depends on whether the unit of analysis is the household or the child. For example, 12% of households with children in Germany had three or more children in 2020 (UNICEF, 2021). Among children though, one-third of them are living in families of three or more children by the time they reach age 10 (2016 microcensus, Bujard, Brehm, et al., 2019). In other words, despite a general decline in overall cohort fertility and tendency towards the two-child family norm as in most advanced economies, the incidence of children growing up in large families remains relevant at a societal level. To capture this reality of children's family circumstances, this article employs a child-centered perspective. We use a child cohort survey with children in early adolescence as the central unit of analysis, as this is an age where co-resident siblings are likely to be most prominent (Curran, 2019): children are old enough to have younger siblings born into the family but young enough to have older siblings still at home.

Recent years have seen a small but growing research interest on large families in Germany (Bujard, Brehm, et al., 2019; Bujard & Lück, 2015; Bujard & Sulak, 2016). While these reports have highlighted the elevated poverty risk of large families, they have not analyzed the socio-economic and policy drivers of this risk. Currently, as part of the European Child Guarantee, UNICEF identifies families with 3 or more children as a group with an elevated poverty risk in Germany and recommends addressing this in the National Action Plan (UNICEF, 2021). But the latest draft of the German National Action Plan neglects large families as a priority group, mentioning them in passing without specific policy actions attached (BMFSFJ, 2023). If children in large families are a priority population, it is important to understand the degree to which the current German system of child-related transfers acknowledges and addresses the needs of children in large families. This article analyses both of these issues and, in doing so, makes a timely and policy-relevant contribution to this under-developed aspect of the evidence base.

To fulfill our central research aims, our analysis follows in three parts. We review the recent German literature on large families and child poverty risk, with a detailed overview of the welfare and tax policies aimed at large families. Next, we estimate the poverty risk and prevalence for children in large families (looking at families with either 3+ or 4+ children) and identify the nature of the relationship between family size and poverty risk. Finally, we discuss how the policy and socio-economic context interacts with poverty risk to identify policy implications for addressing child poverty in large families. This policy context, combined with our identified set of socio-economic factors associated with contemporary large family poverty in Germany, inform our discussion of research and policy implications to better understand and support children in large families in Germany moving forward.

LITERATURE REVIEW

Child poverty and large family size

Germany has long enjoyed lower levels of both pre- and post-tax and transfer poverty levels compared to other high-income nations (Kenworthy, 2004, chapter 6). In the 1990s and early 2000s, approximately 1 in 10 children in Germany were living in poverty (Corak et al., 2008; Heuveline & Weinshenker, 2008), a proportion that increased to above 14% in the 2010s (Bahle & Krause, 2017). Both the international literature (Corak et al., 2008; Jenkins et al., 2003) and the national poverty

reports (BMAS, 2013, 2017) have highlighted the elevated poverty risks associated with family structure (here, single-parent households) and migrant background.

A few studies have considered family size and poverty in Germany. Regarding the social profile of large families, most demographic research has focused on the social profile of mothers (Bujard, Brehm, et al., 2019; Bujard, Lück, et al., 2019). Descriptive findings show that mothers with 3 or more children are more likely to live in West Germany, have lower educational background, are born in a predominantly Muslim country, and have a migrant background. However, the migrant effect decreases by the second generation (Bujard, Brehm, et al., 2019) and is not statistically significant when controlling for educational background (Naderi, 2015). Additional multivariate analyses of large families at the household level or children growing up in these households in Germany today are absent from the contemporary literature and our analysis addresses part of this gap with respect to income poverty risk. Some qualitative studies provide further in-depth insights into the lived experiences of large families (Simon, 2022), but fall short of providing any representative social profile.

With regard to income poverty, available descriptive findings consistently report a higher poverty rate of families with 3 or more children in Germany (Bahle & Krause, 2017; BMAS, 2017; Bujard, Brehm, et al., 2019; Destatis, 2017), but only a few studies control for other socio-demographic characteristics. Corak et al. (2008) found higher household poverty rates among couples with 3 or more children in the 1990s, but the differences by family size were not statistically significant. Jenkins et al. (2003), looking at West Germany in the 1990s, find that changes in household size, including the addition of children, appeared as a less common feature among children entering poverty. Yet, their analysis did not distinguish between a small and a large family (i.e., adding a third or fourth child). Recent qualitative findings, though, do highlight the interaction of family income, higher material needs, and insufficient support for large families in terms of income transfers, childcare support and mobility (Andresen et al., 2022).

Comparative enquiries tend to confirm a statistically significant relationship between large families and a higher poverty risk. A 2004 cross-national analysis of household characteristics associated with the risk of poverty identified the number of children as a significant independent factor in Germany as in other countries (Crettaz, 2011). Cantillon and Van den Bosch (2002) found that children in large families remained more numerous than in one-parent families in much of Europe in the 1990s and, subsequently, more children in large families are exposed to poverty. This was not the case in

Germany: children in one-parent families represented a bigger share of children in poverty. Still, the share of children in poverty in large families was substantial in Germany: as of the mid-1990s, approximately 30% of children living in poverty were living in families with 3 or more children, making large family size a relevant—often overlooked—family attribute linked to child poverty.

Factors mitigating or exacerbating poverty risk

Since large families have not been a prominent feature of many recent German studies of child poverty, we highlight key factors from the international literature. Our subsequent policy section identifies how each of the main child-related income supports in Germany today interact with income and poverty status, but first we consider a set of intervening socio-demographic, labor market and economic factors that also factor into our analysis.

Socio-demographics

As highlighted earlier, single parent families face a significantly higher poverty risk across all studies, as well as higher educational achievement and non-migrant status reduce that risk (BMAS, 2013, 2017). Additionally, migrant-status interacts strongly with labor market integration (Park, 2022) and drives some of the higher poverty risk.

Labor market

Bahle and Krause (2017) identify a set of three consistently contributing factors to contemporary child poverty in Germany: employment access, low levels of earnings, and low levels of social benefits, which they note often combine to place one-parent and low education and training families at a higher poverty risk (also Corak et al., 2008). The ideal of the adult worker model, in contrast to the male breadwinner model, not only contributes to higher gender equality (Daly, 2011), but also reduces that risk. As of the mid-1990s, dual-earner couples were less common in Germany than in other high-income countries. Female labor force participation has increased in Germany since the 2000s, but mothers work predominantly part-time (Tamm, 2010), only tend to increase their working hours as their children become older (Duensing, 2006), and “work-family trajectories” remain highly gendered (Aisenbrey et al., 2009). Parents

of large families, with stronger effects for mothers than for fathers, have lower employment rates and stay out of work for longer periods after childbirth than parents of small families (BMAS, 2013, p. 132). Our study seeks to understand the degree to which these issues also intersect with the poverty risk of large families.

Assets

The asset-based welfare literature highlights the importance of wealth as a buffer against temporary hardship (Rodems & Pfeffer, 2021). Although interest in policies designed to develop assets for children has been increasing, empirical evidence for child savings accounts to mitigate asset inequality, for example, has been limited (Searle & Köppe, 2014). Accounting for large family size offers a particularly useful lens to study family wealth. Resource dilution pressures affect more than just current consumption: they also affect family asset acquisition and impact future asset division (Spilerman, 2000). If the social profile of large families is skewed towards more asset-rich families, these resources can buffer against economic hardship. Although recent findings show how, for instance, intermarriage increases wealth concentration among German elites (Tisch & Ischinsky, 2023), we know little about the dynamics of assets and income poverty in the context of large families. In a study of income poverty, we expect significant overlap between income and asset poor households. And so, integrating family wealth in income poverty research is crucial to understand the wealth buffers and levels of assets that mitigate (temporary) income deprivation.

Means-tested assistance

Finally, Germany's welfare state is associated with substantive state support for the primary breadwinner (historically male) coupled with relatively generous family transfers (Pezer, 2022). Yet, child-related income support benefits in Germany tended to skew “pro-rich,” as they increased in value as family income increased (Duensing, 2006; Pezer, 2022). Means-tested assistance has also been historically more vulnerable to cutbacks than social insurance programs in Germany compared to other high-income countries (Nelson, 2004). The goal of this analysis is to understand the connections between large family size, child poverty, and income policy impacts in Germany today. The next section describes the current suite of child-related transfers available to children across the income distribution and across family sizes.

POLICY CONTEXT

Large families are recognized within the German benefit and tax system differently by program area. Large families are specifically acknowledged with the child benefit, but depending on family income, this policy interacts with both means-tested social assistance (for lower income families) and child tax relief (for higher income families), neither of which adjust for larger family size. An example of policy design potentially exacerbating poverty risk is the fact that low-income households who receive means-tested benefits do not receive the increased child benefit rates for higher birth orders. The following summary maps the key welfare schemes and how they account for the number of children in 2013, which corresponds to the year of our child survey data (more in Methods). We then focus on how these three main schemes are likely to affect child poverty among children in large families (see Appendixes A.4–A.5 for wider policy context).

Means-tested benefits

In 2013, the main poverty prevention schemes in the German welfare system were a number of means-tested minimum income schemes. Depending on the scheme, strict job search requirements applied (*Arbeitslosengeld II*, including regulations for in-work allowances), some allowances were aimed at dependent family members (*Sozialgeld*), and others had no work requirements (*Sozialhilfe*). All schemes have in common to provide a child specific allowance for each co-resident child (*Kinderregelsatz*), which increases in value with the age of the child, but not with the number of co-resident children (Bonin et al., 2013). Specifically, the rate for each co-resident child is a percentage of the adult rate depending on the child's age (60% for 0–5 years, 70% for 6–13 years, 76% for 14–18 years, 80% for 18–24 years). Unlike more penalizing means-tested schemes elsewhere (see above and Chzhen & Bradshaw, 2024; Gallo et al., 2024), there are no limits to the number of children. In 2023, the three schemes were merged to a citizen's benefit (*Bürgergeld-Gesetz*, 2022), which increased generosity and broadened eligibility, while the main aspects of the co-resident child rate remained in place.¹ Nevertheless, the increased child benefit rates for the third and fourth

¹While the social assistance scheme is aimed primarily at families out of work, the minor supplementary child allowance (SCA, *Kinderzuschlag*) is aimed at low-income working parents. We mention it here as it is wedged between means-tested social assistance and universal child benefit, but can only be used to purchase ear-marked social services. These families would usually receive the full child benefit as they are above the minimum income thresholds, but remain at risk of social

child (see Table 1) are deducted in all means-tested schemes (Böhmer et al., 2014). In practice, this means that low-income families are excluded from receiving child benefits, as their means-tested assistance tends to outweigh child benefits in value. For instance, the child allowance in 2013 for a 5 year old was €229.20 per month in the means-tested scheme. Yet, the universal child benefit (€184) would be considered as income and the family would only receive €45.20 in means-tested benefits for the child.

Child benefit

Germany's child benefit eligibility and rates for the number of children have changed over time since it was first instituted in 1955 (Rainer et al., 2012), but the current system of a universal benefit and additional rates for the 3rd and 4th has been in place since 2009 (see Appendix A.1 for detailed changes).

Overall, the three different benefit rates acknowledge the different economic needs across family size (i.e., in 2013 1st/2nd child €184, 3rd €190 and 4th €215 per month, for details see Tables 2 and A.1). In particular, the child benefit scheme emphasizes the increased costs associated with the addition of a fourth or subsequent child. At the same time, the value of the child benefit has decreased, in relative terms, for the 4th child by 61% points between 1996 and 2021 (see A.1). Put in historical perspective, Germany's child benefit—though strongly targeted to larger families in its origin—became more generous for smaller families over time. In theory, the differentiated rates could mitigate the poverty risk among children in large families, though the lower rates over time would suggest a declining effect for large families.

Child tax relief

The current child tax relief system (*Kinderfreibetrag*) has been in place since 1996. Similar to means-tested assistance, it interacts with child benefit, in that the value of a household's child benefit is automatically set off against the value of their child tax relief (Bonin et al., 2013). As a result, it has a regressive structure with only the top income decile families ultimately benefiting (Sozialpolitik, 2023).

The child tax relief has increased over time at the same intervals as the child benefit, but, in contrast to

exclusion. In the context of large families, the SCA benefit is equal for each co-resident child and mirrors the social assistance without acknowledging large families.

TABLE 1 Summary of Germany's child-related transfer policies, 2013.

	Means-tested benefits (Kinderregelsatz)	Child benefit (Kindergeld)	Child tax credit (Kinderfreibetrag)
Benefit rate	Means-tested	Universal	Earnings-related
Large family rate	Flat-rate per child, age-dependent rate	Higher rate for 3rd/4th child	Flat-rate per child
Target families	Low-income households	Middle class	Top income decile

Source: Authors.

TABLE 2 Annual child benefit (CB) and child tax relief (CTR) compared by number of children (2013).

	No. of children			
	1	2	3	4
CB	2208	4416	6840	10,320
CTR	7008	14,016	21,024	28,032
Δ Delta	4800	9600	14,184	17,712
Δ per child	4800	4800	4728	4428
% CTR of CB	317	317	307	272

Source: Authors' summary and calculation (see Appendixes A.1–A.2). Rates refer to the total amount per year. Reference year is 2013.

the latter, it provides equal per-child rates (see Appendix A.2). Since the per child rate does not adjust upwards for higher birth order children, the child tax relief provides higher benefits to smaller families and large families benefit slightly less, as seen in Table 2.

Policy and poverty

Among the three main child-related transfers—means-tested assistance, child benefit and child tax relief—child benefit is the only policy that specifically recognizes children in larger families and provides a greater benefit rate for 3rd and 4th order children. In practice, however, only large families with middle incomes receive it. Larger families towards the bottom of the income distribution have their child benefit offset by flat-rate means-tested assistance, which—in contrast to the child benefit—does not adjust benefit rates for children higher in the birth order. Compared to middle income families, these rules suggest that large families at the bottom of the income distribution end up worse off in relation to per-child income support. In fact, family size is not explicitly recognized in the means-tested assistance they ultimately receive. Similarly, larger families high up in the income distribution have their child benefit offset by flat-rate child tax relief, which also does not adjust for birth order.

These rules have particular implications for children in large families at risk of poverty in Germany. While the flat-rate child tax relief structure would widen the disposable income gap between small and large families, these higher income households are not at risk of poverty. Yet, low-income families relying on flat-rate means-tested benefits are. Since the means-test deducts the per-child child benefit bonus for large families, low-income families are not compensated for the extra cost of raising children in a large family. Therefore, we would expect a higher poverty risk among large families receiving means-tested benefits, compared to small families receiving the same benefit.

METHODS

Understanding the prevalence and impact of large family size depends to a large extent on the perspective used to measure it and the moment in the life-course at which families are surveyed. Preston (1976) demonstrated that the family size of children (as measured by the number of siblings) is almost always larger than the family size of women on average (as measured by fertility). The unit of analysis matters. Hence, a child-centered perspective is important when measuring the prevalence of large family size, and even more when measuring child poverty.

Therefore, children are the primary unit of analysis in our study and we use the National Educational Panel Study (NEPS), a representative panel of children growing up in Germany (Blossfeld et al., 2011), as our primary data source. As noted earlier, household-level data, similar to studies of family size that look only at women's fertility, can understate the incidence of large family size among children. Family size also shifts over the life course and the time living together with all siblings is relatively short in the context of an individual's life span. Therefore, selecting a data point at which a child's family size is likely to be complete is crucial for research on large families (Fahey, 2017; Fahey & Curran, 2016). Curran (2019) shows that from a child perspective, large families reach their peak when the reference child is in their

early adolescence as then, any older and younger siblings are most likely to be present in the home. Bujard, Brehm, et al. (2019) employ a similar age framework for Germany, looking at children aged 10.

In the available NEPS data, we use the 3rd cohort sample of pupils in lower secondary schools (SC3)—almost all of whom are aged 13 and 14 and represent an age that is still close to the peak of their co-resident siblings (doi: 10.5157/NEPS:SC3:10.0.0). In this slightly older cohort, 25%–27% were living in families with at least three children in the home (depending on sample size, Tables 3–5), which is lower than Bujard, Brehm, et al. (2019) 33% estimate of 10 year olds in 2016.

Looking at the household level, based on our own analysis of the 2013 German microcensus, there are

10.7% of 3+ families among all households with children. From this, we estimate that 21.8% of all children under age 18 were in large families in that year, which totals more than 2.8 million children (own calculations based on table 5.2.1, Destatis 2014). Yet, the microcensus result is also likely an *underestimate*; the data table is capped at households with 5 children, as very few large families with 6 and more children would pull the share of children in large families further up. A further underestimation bias in terms of the prevalence of large family size in children's family circumstances in Germany today lies in the fact that the microcensus includes small families that may evolve into larger families. Bujard, Brehm, et al. (2019) age cohort analysis estimate identifies that large family size in Germany may reach peak incidence for children around age 10. Hence, our sample of 13 and

TABLE 3 Sample characteristics and variables, 13 and 14-year olds (SC3, wave 3, 2013, unweighted).

Variable	Obs.	Mean	SD	Min	Max
Poverty	2730	0.13	0.34	0	1
<i>Family type</i>					
Small family	2730	0.73	0.44	0	1
3 children	2730	0.19	0.39	0	1
4 or more children	2730	0.07	0.26	0	1
<i>Religious group</i>					
No religion	2730	0.22	0.42	0	1
Catholic	2730	0.32	0.47	0	1
Protestant	2730	0.39	0.49	0	1
Muslim	2730	0.02	0.14	0	1
Other	2730	0.03	0.17	0	1
<i>Migrant status</i>					
Single parent	2730	0.13	0.34	0	1
<i>Parental education</i>					
Secondary	2730	0.33	0.47	0	1
Post-secondary	2730	0.09	0.28	0	1
Technical college	2730	0.22	0.41	0	1
University	2730	0.36	0.48	0	1
Unemployment	2692	0.02	0.14	0	1
<i>Parental work intensity</i>					
Both FT	2692	0.12	0.32	0	1
One FT other PT	2692	0.41	0.49	0	1
One FT other none	2692	0.30	0.45	0	1
Other	2692	0.17	0.38	0	1
Homeownership	2570	0.70	0.46	0	1
Asset quintile	2570	2.91	1.45	1	5
Benefit receipt	2570	0.05	0.24	0	1

Source: Authors' analysis, NEPS 2013.

14 year olds likely underestimates slightly the incidence of children in large families over the life course, but with the applied weights our analysis is based on a sufficiently representative sample of children in large families to estimate the poverty risk accurately. Compared to household survey data, the NEPS children's cohort study offers a better sample size of children in large families and a richer source of information on the circumstances of children's lives at this point in time.

We base the majority of our analysis on the parents' survey, conducted in Spring 2013; as such, our reference year for the policy and socio-economic context is also 2013. While close to a decade from the time of writing, this data still offers a relevant sample for analysis. We require an age cohort of children in early adolescence, which the SC3 sample suitably match. The later primary school cohort (SC2) is less suitable as they were impacted by the COVID-19 pandemic around this age. The 3rd wave of SC3 contains a booster sample and key independent variables (e.g., assets) were revised or collected for the first time that are useful to our analysis. Due to several missing values on key socio-demographic variables, we match wave 1 and 2 data, especially when it concerns stable demographic variables (e.g., migration status) and use the most recent (in case of missing values across the waves) or the highest value (in case of fluctuating observations) recorded during the periods. And overall, the German economic and policy context of 2013 still sheds light on how children are likely to fare in today (excluding the COVID-19 period); in particular, as the suite of child-related transfers has not changed substantially in the interim.

Our sample consists of a total number of 4002 children in wave 3 with full information about the Sibsize and income poverty, while the final logistic regression model with all control variables has a sample size of 2570. Our unit of analysis is 13- and 14-year-old children, but given our focus on economic status and poverty risk, we focus mainly on household and parental characteristics. We only use the individual student file to match it with the parent's survey that contains a wide range of socio-demographic characteristics. NEPS is a stratified sample with schools as primary sample units. If not stated otherwise, all reported estimates control for PSUs and weights (svy estimates in Stata).

Variables

Our dependent variable is the risk of poverty among children. We use the commonly used benchmark of 60% of median income to align the findings with international studies of child poverty (Cantillon et al., 2017) and

German and European poverty reporting practices (BMAS, 2017). For income, we use the self-reported net monthly income (for a similar approach to calculate child poverty see Karwath et al., 2022). Although the recent administrative data linkage project records gross income more accurately (Bachbauer et al., 2021), it does not provide net incomes to estimate post-transfer poverty rates. Moreover, Antoni et al. (2019) report that underreporting of income in the lowest quintile of NEPS is negligible and is, therefore, a very valid measure of poverty. For households that did not report their net income directly, we used routed questions that provide income brackets and applied the median for each bracket. For the calculation of the poverty line, we use the modified OECD equivalence scale and the national income thresholds based on EU-SILC (Destatis, 2021). It should be noted that poverty risk, particularly by family size, can be sensitive to the equivalence scale used (Curran, 2019). Equivalence scale measurement can also be affected by a wealth or asset bias (Rapp, 2021). Evaluating different equivalence scales is beyond the scope of this analysis and we use the modified OECD equivalence scale given that it is the most commonly used internationally to estimate child poverty (Cantillon et al., 2017).

Our main independent variable is large family size. We derive large families from the variable "Number of siblings in the household" (*p732104*). After estimating the number of children in the household (Fahey, 2017), our main variable to account for large families is a categorical variable that differentiates between children growing up in families with only 3 children and those with 4+ children (*famsize*). Moreover, we create two dummy variables identifying large families with 3+ co-resident children (*lf3*) and those with 4+ (*lf4*). Our estimates count all co-resident children regardless of age. In the German context, parents are still eligible to receive child benefit support for students in full-time education until the age of 27 and are obliged to provide economic support for them as well. Moreover, co-resident children are treated as a benefit unit in the means-test after the age of 26. Although families with co-resident children is the most prevalent indicator used in the large family literature, it does not account for the actual income dependency not only in legal and policy terms, but also culturally. As we exclude adult dependent children living outside the parental home, this leads to an underestimation of economic dependence (for example, those who are still studying but have moved out of the parental home) and, therefore, household poverty.

All our control variables are drawn from the parent questionnaire and listed in Table 3. Appendix A.3 details how we have constructed each variable, which are largely in line with common practice in poverty research.

Broadly speaking, we control for demographic, labor market, economic and policy factors that we have highlighted in the literature review and are, besides being a large family, associated with being at risk of poverty. Since large families have a specific social profile, the control variables will ensure we measure the risk of poverty independent from these social characteristics and can indeed isolate the specific poverty risk of large families.

Analysis

For the analysis, we treat the panel data as cross-sectional data in year 2013 and account for weighting and stratified sampling structure through survey estimates. We compute separate logistic regression models for families with 3, 3+, and 4+ children. The sample size for 4+ families is rather small (7.2%, see Table 3), which result in relatively large standard errors. Therefore, our estimates for the multivariate models of 4+ families are less robust and we report these separately in the online appendix to contextualize our findings (A.7).

FINDINGS

Children in large families are impacted by resource dilution

First, we look at the family incomes of children by family size to understand if there are differences in the levels of economic resources available. Looking at mean net monthly household income, prior to any adjustment for family size through equivalisation, we find that children in large families have higher levels of net monthly household income than children in small families. As seen in Table 4, 13–14 year-olds in families with three children and families with four or more children have mean net monthly household incomes that are €390 and €532 higher per month, respectively, than those in small families (see also Appendix Table A.6). Once we adjust net monthly household income for family size, accounting for the number of family members through the OECD modified equivalence scale, however, we find that the situation reverses. Once equivalised, the mean net monthly household income of children in three child and four or more child families is €182 and €418 per month lower, respectively, than the level for small families. In other words, equivalisation and resource dilution—essentially the impact of family size on the adequacy of family income—signals a meaningful underlying risk in the economic security of children in large families. These findings indicate that the income of large families may be less likely to be sufficient to lift family members out of poverty.

TABLE 4 Mean net monthly household income of 13 and 14 year-olds, by family size (in Euro, Germany 2013).

Family size	Mean	SD
<i>Net unequivalised</i>		
1 or 2 children	3699.63	87.268
3 children	4089.34	89.456
4 or more children	4231.67	163.587
<i>Net equivalised (OECD scale)</i>		
1 or 2 children	1787.07	41.719
3 children	1604.70	34.201
4 or more children	1369.42	54.298

Note: All figures are weighted and take sample structure into account.

Source: National Educational Panel Study (NEPS).

Increased child poverty risk and incidence among children in large families

Following on from this elevated economic risk, our descriptive results further reveal that children in large families in Germany face an increased risk and incidence of poverty compared to their small family counterparts. First, we find that children in large families are overrepresented in the population of children in poverty. Children in large families represent one-quarter of all 13- and 14 year-olds, but one-third of these are living below the poverty line (Table 5, Column 1 and 2). As noted in the methods section, we potentially may slightly underestimate the incidence of large families, at least over the life course, while our estimates are within the expected range for this age group. Child poverty rates (Column 3) are also notably higher for children with large family size. Compared to those in small families, the child poverty rate in families with 3+ children is 1.5 times higher (20.4% vs. 13.6%), while the child poverty rate in families with 4+ children is more than twice as high (30% vs. 13.6%). In total, more than 573,000 children were growing up in poverty in 2013 simply based on the fact that they have two or more siblings (own calculations based on microcensus, Destatis 2014). When we analyze the population of children in large families in more depth, we see that this elevated child poverty risk is driven primarily by the very high poverty rate for children in families with 4+ children. Specifically, the poverty rate for those in 3-child only families remains elevated at 16.5% compared to the overall child sample, but not nearly as much compared to the 30% poverty rate of those in families with 4+ children. Columns 4 and 5 display the results of bivariate logistic regressions on the odds of children falling below the poverty line by family type separately. These confirm that children

TABLE 5 Child poverty risk and prevalence by family size and family structure (Germany, 2013).

13–14 year old children	(1) share of children (%)	(2) share of all children living in poverty (%)	(3) poverty rate (%)	(4) coefficient	(5) SD
<i>Family size</i>				Binary (ref: small families)	
1 or 2 children	75.31	66.83	13.59	—	—
3+ children	24.69	33.17	20.38	0.4876***	0.1478
4+ children	7.13	14.07	29.96	0.9545***	0.2230
All	100.0	—	15.28	—	—
				Categorical (ref: small families)	
3 children only	17.55	19.10	16.50	0.2285	0.1712
4+ children	7.13	14.07	29.96	1.0010***	0.2267
<i>Family structure</i>				Binary (ref: 2-parent families)	
Single parent	13.53	31.63	35.01	1.3631***	0.1581

Note: $N = 4002$, all figures are weighted and take sample structure into account. Coefficients, significance in column 3 and standard deviation (SD) in column 5 refer to bivariate/categorical logistic regression models of the poverty rate in column 3.

Source: National Educational Panel Study (NEPS).

growing up in large families, specially those with 4+ children face a significantly higher poverty risk. In contrast, children in small families experience a significantly lower poverty risk in all our models.

A silver lining is the lower poverty gap for large families with 3 children. The poverty gap measures the depth of poverty by the ratio of mean income of poor children below the poverty line. Our findings show a poverty gap of 0.227, 0.175, and 0.225 for small, 3 and 4+ families, respectively. Yet, these descriptive differences are not significant, which means the poverty gap of large families is similar to small families overall.

It is also relevant to note that of all 13–14 year-olds in poverty, the proportion of children living in large families (i.e., 3+) is slightly greater than the proportion of children living in single parent households. There is little overlap between these groups, that is, children in large families are overwhelmingly in two-parent households. At 35%, the poverty risk for children in single parent households remains higher, though the poverty risk for children in families with four or more children is the next closest (at 30%). Overall, these descriptive results indicate that in Germany large family size is as relevant as is single parenthood to the contemporary profile of children in poverty.

Factors of child poverty risk in large families

When we turn to the models that account for additional socio-demographic, labor market, economic and policy

factors associated with poverty, Table 6 reveals that the elevated poverty risk associated with large family size remains a relevant and significant characteristic. Moreover, when controlling for the characteristics of large families, families with three children face a significantly higher poverty risk than without the control variable. In other words, our models confirm that growing up in a large family, beginning with a minimum of three children in the home, is an independent risk factor for poverty in contemporary Germany.

Among the socio-demographic factors outlined in Column 3 of Table 5, single parenthood is associated with a slightly higher poverty rate (35%) for children than for 4+ child family size (30%). In the multivariate models of Table 6, however, large family size emerges as a much more relevant and significant risk factor. As more control variables are considered, the effect for single parent households weakens—both in terms of effect size and significance. As we know, effect size cannot be compared directly across variables in logistic regressions (Mood, 2009), but the relative decline within the single parent variable shows that large family size is at least an equally relevant risk factor.

Table 6 (Model 3) also confirms the relative risk of poverty for children is associated with having parents with a migrant background. Surprisingly, Table 6 (Model 3) also shows that Muslim faith reduces the poverty risk, although cross tabulations not shown here suggest an elevated child poverty rate for Muslims in large families (29% for 3+, 52% for 4+). The sample size is very small for children with Muslim parents ($N = 67$), and more so in large families ($N = 31$ 3 or more, $N = 15$ 4 or more),

TABLE 6 Logistic regression of child poverty risk among 13 and 14 year-olds (Germany, 2013).

Variables	Model 1: Demographics	Model 2: Labor market	Model 3: Full model	Model 4: No religion
Family type (ref. small family)				
3 children	0.478* (0.244)	0.378 (0.256)	0.580** (0.273)	0.458** (0.218)
4+ children	1.531*** (0.304)	1.404*** (0.297)	1.538*** (0.310)	1.121*** (0.294)
Religious parents	-0.0466 (0.211)	0.0689 (0.213)	0.154 (0.232)	
Religious group (ref. no religion)				
Catholic	0.129 (0.280)	0.0667 (0.290)	0.276 (0.322)	
Protestant	0.0350 (0.286)	-0.0627 (0.293)	0.107 (0.310)	
Muslim	-0.571 (0.546)	-1.023* (0.526)	-1.379** (0.659)	
Other	0.225 (0.558)	0.0892 (0.522)	-0.0398 (0.489)	
Migrant status	0.669*** (0.218)	0.724*** (0.239)	0.574** (0.261)	0.361* (0.196)
Single parent	1.384*** (0.215)	0.756** (0.311)	0.776** (0.323)	0.551** (0.252)
Parental education (ref. secondary)				
Post-secondary	-0.852*** (0.296)	-0.770*** (0.297)	-0.333 (0.364)	-0.494* (0.296)
Technical college	-1.092*** (0.244)	-0.797*** (0.246)	-0.396 (0.254)	-0.578*** (0.208)
University	-2.577*** (0.330)	-2.354*** (0.342)	-1.830*** (0.381)	-1.713*** (0.293)
Unemployed parent		1.584*** (0.512)	0.942 (0.586)	0.884** (0.438)
Parental work intensity (ref. Both FT)				
One FT other PT		0.244 (0.441)	0.346 (0.477)	0.234 (0.290)
One FT other none		1.168*** (0.415)	1.348*** (0.457)	0.997*** (0.277)
Other		1.903*** (0.430)	1.226*** (0.462)	1.062*** (0.297)
Homeownership			0.474 (0.357)	0.415 (0.300)
Asset quintile (ref. Third)				
First			1.423*** (0.459)	1.464*** (0.384)

(Continues)

TABLE 6 (Continued)

Variables	Model 1: Demographics	Model 2: Labor market	Model 3: Full model	Model 4: No religion
Second			0.265 (0.345)	0.408 (0.274)
Fourth			-0.306 (0.489)	-0.217 (0.385)
Fifth			-0.0818 (0.388)	0.0488 (0.332)
Benefit receipt			2.316*** (0.435)	2.047*** (0.325)
Constant	-1.728*** (0.255)	-2.758*** (0.412)	-4.129*** (0.620)	-3.414*** (0.448)
Pseudo R^2	0.195	0.257	0.346	0.320
Observations	2730	2692	2570	3706

Note: Standard errors in parentheses. All figures are weighted and take sample structure into account, Pseudo R^2 without PSUs.

Source: National Educational Panel Study (NEPS).

* $p < 0.1$. ** $p < 0.05$. *** $p < 0.01$.

however, which limits the significance of the finding. Moreover, it is important to note that migrant status and Muslim faith interact strongly with our labor market controls and indicate that labor market discrimination—with all the attendant impacts on economic security and poverty risk—is at play (compare Models 1–3). Model 4 shows that once religious affiliation and religiousness of parents are not considered, migrant status loses strength and significance in favor of labor market and economic factors. Robustness checks in A.8 confirm this finding, as migrant background alone becomes less relevant to predict the child poverty risk. In other words, family size, labor market, and economic factors are stronger predictors of child poverty than migration background.

The final relevant socio-demographic factor is parental education operationalized here as the highest educational level attained by any of the parents. As expected, higher educational achievement prevents poverty risk (model 1). Nevertheless, we see the size of this effect diminish once labor market participation and other economic factors are included (Models 2–3).

When turning to the labor market factors, the adult worker model protects against poverty (Model 2). As highlighted in the literature, it is less relevant that both partners or single parents work full-time, if the partner or a single parent works part-time of at least 30 h per week is sufficient work intensity to lower the risk of poverty. Families with one full time earner, which is predominantly the classical male-breadwinner model in our sample (87%), and families with other combinations of work intensity are more at risk of poverty. Current wages and

transfers are no longer supporting the male breadwinner model, while the changing care system of extended parental leave, generous childcare subsidies and longer school days increasingly support the adult work model.

With regards to wealth, housing wealth has no significant impact on the income poverty risk, but the lack of assets increases the risk (Model 3). Those at the lowest asset quintile have a higher risk of income poverty. For the other asset quintiles, their wealth seems to be a buffer against poverty. In monetary terms, the lowest asset quintile has mean assets of €5620 and the maximum assets are at €20,000. More than 30% of this lowest asset quintile report zero assets. In other words, these families often have no, or a very limited, financial buffer against unexpected expenses and also lack sufficient regular income to lift them out of poverty.

Finally, receipt of means-tested benefits is highly associated with children's poverty risk depending on their family size and structure (Models 3 and 4). When adding social assistance receipt in various model iterations, in all cases, a family size of 3 children became significant at the 99% level as well as their likelihood of being in poverty rose (see also A.8). In other words, when accounting for receipt of means-tested benefits, the risk of poverty for large families increases. The opposite occurred for children in single-parent families: the effect size for single parents decreases when means-tested benefits were included. Receipt of means-tested benefits essentially function as another proxy for low income and poverty because families are only eligible for them if their incomes are low enough to be economically insecure.

Empirically, we observe that social assistance receipt is a strong risk factor and does not raise a number of children above the poverty line. However, they should—in theory—help boost family resources enough to move above the poverty line once all welfare state interventions are accounted for. This is what appears to happen for children in single-parent families, as when receipt of means-tested benefits is accounted for, their risk of poverty decreases. Because this does not happen for children in large families, this raises questions about the adequacy of the current level of means-tested benefits available to children in large families; they may be insufficient in scope to meaningfully address the risk of poverty that large families experience—particularly, families with at least three children.

Robustness checks and limitations

The NEPS income variable is not as detailed as from other household surveys, but relatively accurate for low income families (Antoni et al., 2019). For instance, other benefit claims than social assistance receipt cannot be explored nor does the gross income capture tax benefits (e.g., the siblings bonus of the parental leave scheme, see Appendix A.4). Still, our benchmark poverty rate for families with three or more children (Table 5) is well within the range of other estimates (BMAS, 2017). For a more comprehensive future income and poverty profile of large families, data triangulation (e.g., EU-SILC, GSOEP) should be explored to capture the interaction of benefits and taxes better, specifically child benefit and child tax relief.

Moreover, in the online appendix we have estimated various models to ensure our estimations are robust. First, we have run the models with the same sample as Model 3 in Table 6 (A.8). Despite some minor changes in the standard errors, our models hold with the smaller sample. Second, we have isolated the policy effect of the means-tested benefit. Again the effects observed in the main Table 3 hold with these specifications. Third, we have ruled out other policy features of the German welfare system that acknowledge large families, explicitly parental leave and salary scales of civil servants (Appendixes A.4–A.5). Yet, these demographics are underrepresented in NEPS and further data and analysis would be required to assess the relationship between large families and these policy target groups.

DISCUSSION

This article is the first to focus on the contemporary poverty risk of large families in Germany and situate it in the

context of relevant socio-demographic factors and child-related income transfer policy. As such, our article makes three main contributions to the literature on the nexus of family size, poverty risk and social policy.

First, we demonstrate the elevated risk and incidence of poverty risk for children in large families in Germany—both those in families of 3+ children and especially those in families of 4+ children. Yet, we find no significant differences between small and large families regarding the poverty gap. As seen in Table 5, we also find that large family size is a prevalent characteristic of the population of children in poverty today—a relevant consideration for researchers and policymakers alike. By early adolescence, children in large families (i.e., 3+) represent one-quarter of the child population, but one-third of the child population living below the poverty line. When controlling for a range of additional family social characteristics, as seen in Table 6, we find that growing up in a large family is an independent risk factor for poverty in and of itself.

Second, we confirm the high risk of poverty for children in single-parent families long recognized in the literature, but reveal two additional insights that indicate the need to widen the research and policy lens on child poverty in Germany. As Table 5 shows, the high risk of poverty for early adolescent children in single-parent families (35%) is closely followed by the high risk of poverty for children in families with 4+ children (over 30%). But in absolute terms, within the contemporary population of children experiencing poverty, there are slightly more children in large families than there are children in single-parent families. And within our age group this is potentially even a slight underestimate, compared to the higher incidence rate of large families reported for 10 year olds (see Methods, Bujard, Brehm, et al., 2019). This is because the population of children in large families is overwhelmingly in two-parent families and the overlap between these two groups is minimal. This means that not only is the relative poverty risk of children in large families often overlooked, but also that at least the same—if not more—children in poverty grow up in large two parent families as in small families with one parent. This represents a meaningful shift, two decades later, from the results reported by Cantillon and Van den Bosch (2002) that saw Germany as one of the European outliers in the mid-1990s for having a greater proportion of children in poverty in single-parent families than large ones. In line with other more recent comparative studies (Curran, 2019), Germany confirms that in absolute numbers, most advanced economies have more children in poverty living in large than in single-parent families. These results do not suggest ignoring the economic risks for children in

single-parent homes today, but rather urgently widening the focus of research and policy moving forward to also understand how to better support children with large family size as well.

Third, we show that the current tax and transfer system in Germany may not pay sufficient attention to the economic needs of children in large families. Our models show that large families may face certain structural barriers to moving out of poverty, such as full-time employment and labor market discrimination. We find that large families earn more than smaller families on average. However, once incomes are adjusted through equivalisation to account for the number of family members that must be supported by these resources (Table 4), the average per capita incomes of large families fall below the average incomes of small families. The resulting exacerbation of risk of economic insecurity is then seen in the difference in at-risk of poverty rates by family size (Table 5 and 6).

Reviewing the suite of child-related transfers in 2013, it is clear that the system does not acknowledge the fact that the average equivalized incomes of large families in Germany are insufficient for 20%–30% of these families to cover the increased costs of having three or more children. While the child benefit scheme nominally offers increased rates for large families, by design these enhanced rates do not reach families on low income whose children could arguably benefit from them the most. Rather, the interaction of Germany's child benefit with means-tested benefits indicates that the higher rates for children in large families are lost through automatically offsetting these against the means-tested benefit. Our analysis also indicates that means-tested benefits may be inadequate for large families in general, as we find an increased risk of poverty associated with receipt of these benefits for children in large families compared to a reduced risk for children in smaller families—particularly those with a single parent. The 2023 increase of eligibility of the streamlined citizen's benefit potentially mitigates the poverty risk for some families closer to the income and asset threshold, but the penalizing deduction of the child benefit for large families remains in place. On the whole, our results suggest that the elevated poverty risk for children in large families is exacerbated—rather than mitigated—by many of the current features of the transfer and tax system. Instead of supporting children in large families regardless of the parental income, children in low-income families are doubly penalized.

Our analysis focuses on the risk of poverty and therefore we did not examine the distributive effects of child-related transfers (e.g., the interaction between child benefit and child tax relief) at the top of the income distribution in detail. We do find that child benefit primarily targets the middle class, while the flat-rate child tax relief only applies to about 10% of families. Our model

(Table 6) does indicate that assets—or the lack thereof—are a relevant factor in the economic situation of large families, it could mean that the tax system not only penalizes large families at the bottom but also at the top. Further research on income inequalities of large families would have to investigate this policy relationship more comprehensively. Notwithstanding these limitations, our article is the first to describe the three intervening policy schemes (means-tested benefits, child benefit, and child tax relief) with a focus on large families.

CONCLUSION

Despite the historic recognition of the risk of poverty among large families, contemporary poverty literature across wealthy countries has neglected family size, particularly as attention to single parent families—and corresponding economic risks—increased. This article revives a focus on family size, employing a child-centered analysis to examine the connections between large family size and poverty risk among children in Germany, as well as the degree to which child-related income supports interact with observed poverty risks.

Our findings are relevant for future poverty-related research and policy. We find large family size is both an under-appreciated family circumstance and an independent risk factor for poverty among children in Germany today. This finding is in line with examinations of children in similar age cohorts in liberal welfare states (i.e., the United States, United Kingdom, Ireland) around the same time period (Curran, 2019) and examinations of poverty risk among children and families in other countries highlighted in this special issue. By early adolescence, one-quarter of children in Germany are living in families with at least three co-resident children, but one-third of all children in poverty are living in large families. The poverty risk and incidence of children in large families in Germany is lower than in liberal welfare states, but the over-representation of children in large families among children in poverty is similar cross-nationally (Curran, 2019).

Children in large families face poverty rates up to twice the level of children in small families, but remain overlooked in child-related transfers directed towards those on low incomes. Although child benefit is the main child-related income transfer that recognizes large families, due to its interaction with means-tested assistance policy, it is only available to those in the middle class. This confirms international studies that show how means-tested benefit caps discriminate against large families (e.g., Chzhen & Bradshaw, 2024; Gallo et al., 2024), although the German system remains less penalizing in comparison.

Additional directions for future research can include exploring additional mechanisms for support—for example, what needs do large families have in relation to childcare and employment and are there particular structural barriers? We have found indications that migrant status and labor market participation interact, which needs further unpacking to fully understand the labor market profile of large families. Another perspective would be to consider the longitudinal effects on poverty such as duration and episodes of poverty.

It would also be of interest to examine the income and asset adequacy of large families above the poverty line. Here, the question is less about risk of poverty, but their relative income position compared to small families. Moreover, higher income earners might have more agency about fertility and labor market participation. Some media discourse portrays large families as a status symbol of the rich (Day, 2012), which needs further unpacking and potentially myth-busting through robust analysis of income inequality among large families. While our analysis sought to highlight specific policy issues and interactions between the child benefit and social assistance scheme for families with lower incomes, future research can explore how large families can be better recognized within the German tax and transfer system in general. For example, a wider policy debate may discuss and examine how to better acknowledge children with many siblings across the income distribution. At the same time, it is also important to consider how any enhanced focus on family size and poverty could play out in the media and public debate in order to mitigate potential negative effects and avoid stereotyping of large families.

The results of this study lend support for the recognition of large family size as a contemporary risk factor for child poverty and as a factor relevant for child-related income support policy and research to better understand and support children in Germany. It also contributes to the wider international revival of large families on the social policy agenda of researchers and policymakers alike, highlighting the importance of acknowledging large families in poverty, hardship, and well-being research and realizing adequate policy responses moving forward.

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CONFLICT OF INTEREST STATEMENT

The authors declare no conflicts of interest.

DATA AVAILABILITY STATEMENT

The analysis is based on the researcher files of the National Educational Panel Study (NEPS). Since data cannot be shared, we publish the STATA do files for the derived variables and main analytical steps at the Harvard Dataverse (<https://doi.org/10.7910/DVN/SVJMIW>, <https://dataverse.harvard.edu>).

ETHICS STATEMENT

The research is approved through the NEPS Data Use Agreement (Ref. 03969).

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SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

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APPENDIX A

A.1 | TABLE MONTHLY CHILD BENEFIT RATES
IN EURO

Year	Monthly value in Euros			Value as % of 1st child	
	1st/2nd child	3rd child	4th child and more	3rd child	4th child
1996	102	153	179	150.0	175.5
1997	112	153	179	136.6	159.8
1998	112	153	179	136.6	159.8
1999	128	153	179	119.5	139.8
2000	138	153	179	110.9	129.7
2001	138	153	179	110.9	129.7
2002	154	154	179	100.0	116.2
2003	154	154	179	100.0	116.2
2004	154	154	179	100.0	116.2
2005	154	154	179	100.0	116.2
2006	154	154	179	100.0	116.2
2007	154	154	179	100.0	116.2
2008	154	154	179	100.0	116.2
2009 (March)	164	170	195	103.7	118.9
2010	184 €	190	215	103.3	116.8
2011	184 €	190	215	103.3	116.8
2012	184 €	190	215	103.3	116.8
2013	184 €	190	215	103.3	116.8
2014	184 €	190	215	103.3	116.8
2015	188 €	194	219	103.2	116.5
2016	190 €	196	221	103.2	116.3
2017	192 €	198	223	103.1	116.1
2018	194 €	200	225	103.1	116.0
2019 (July)	204 €	210	235	102.9	115.2
2021	219 €	225	250	102.7	114.2

Note: Child benefit is paid up to the age of 18, but children in education can receive child benefit up to the age of 25.

Source: Own calculations in column 4 and 5, (Sozialpolitik, 2023) <https://www.buzer.de/gesetz/1166/all19865-0.htm>.

A.2 | TABLE ANNUAL CHILD TAX RELIEF PER CHILD IN EURO

	2013	2014	2015	2016	2017	2018	2019	2020	2021
Child tax relief	4368	4368	4512	4608	4716	2394	2490	2586	2730
Care and educational allowance (BEA)	2640	2640	2640	2640	2640	1320	1320	1320	1464
Total per parent	3504	3504	3576	3624	3678	3714	3810	3906	4194
Total household allowance	7008	7008	7152	7248	7356	7428	7620	7816	8388

Note: The tax relief has two components (Child Tax Relief – CTR, Care and Educational Allowance – BEA), but in practice these do not matter for the calculation (see Table A.2).

Source: Own calculations based on (Sozialpolitik, 2023).

A.3 | CONTROL VARIABLES

First, we control for a range of demographic variables that are associated with large families. Religiousness refers to the self-reported intensity of faith. We created a dummy variable as religious when the parents expressed to be rather religious and very religious out of four options. The denominational affiliation is a categorical variable drawn from several routed questions in the survey where we distinguish among Catholics, Protestants, Muslims, and others. The Protestant category includes all evangelical faiths (Anglican, Baptism, etc.), with the assumption that these Protestants are predominantly Lutherans (98.7% in 2013, calculations based on EKD, 2015). All smaller denominations are merged into others, including Jewish and Christian Orthodox faiths, as their sample size was very small.

The migration status of parents is measured if one of the parents was born abroad. Single parents are selected following the “marital status” variable. Single parents are identified when they are not married or in a registered civil partnership (only for same-sex couples) and are not living together with their partner. The parental education variable is based on the highest educational level attained by any parent in the household. In two-parent households, we use the level of whichever parent has a higher educational achievement (based on the International Standard Classification of Education [ISCED]); in one-parent households, we use the educational achievement level of that single parent. Relevant for labor market success and social status in the German context are four main categories: secondary education, post-secondary non-tertiary (equivalent to apprenticeship), technical colleges, and university degree.

Second, we use two labor market variables. The parental labor market attachment is measured as work intensity at the household level. We create a categorical variable differentiating between the work status of both parents: by both working full-time, full-time and part-time, full-time and inactive and others. The other category includes those working less than 30 h, both partners working part-time and either of them seeking work. This approach follows the logic of avoiding categories with too few cases that prevent their inclusion in the analysis. In the case of single parents, they were ascribed to the most similar work-intensity level attributable. Unemployment was captured as a dichotomous variable where 1 represents that at least one of the parents is officially registered seeking employment.

Third, as income is included in the definition of poverty, we do not control income, but we do control for wealth in the form of homeownership and total gross wealth. In relation to the asset-based welfare literature (Rodems & Pfeffer, 2021), wealth is assumed to be a buffer against poverty and can be accessed as an additional income source in periods of financial stress. Homeownership is a simple binary variable and very robust measure for wealth. We cannot estimate net housing wealth in the data, though at the life-stage of the sample families, it is most likely that homeownership is mortgage-financed. Respondents were also asked to provide an estimate of their total gross wealth (including property wealth). Due to the sensitive nature of the question, a relatively high number of respondents (>1000) did not provide an answer. Those who did respond were then asked about their asset brackets up to 1 million Euro. For all missing values, we used the median of each bracket and for the top category we added the lower value of the previous

category (i.e., 1.5 m). This increased the sample by 824 observations. Since we control for housing wealth alongside gross wealth, the gross wealth variable is a good proxy for liquid assets such as savings and other financial wealth. Although the survey questionnaire also contains a question on gross household debt, this question was the least reliable in terms of response rate and error margins and so we focused on gross wealth instead.

Finally, we measure means-tested social assistance receipt through the available question. Specifically, the question asks for the three means-tested benefits discussed in the policy section (*unemployment assistance, child allowance, social assistance*). With the available survey questions we cannot measure child benefit nor child tax relief receipt.

A.4 | ROBUSTNESS CHECKS SIBLING BONUS AND PARENTAL LEAVE

Other transfer and wage schemes also target large families, but they are not relevant in the context of poverty risks for working age families with lower secondary school children.

Within the parental leave scheme, additional rates apply for multiple births and children born in quick succession (Böhmer et al., 2014), but not for large families per se. The Siblings Bonus applies to two child families if the first child is younger than four. For families with at least three children, the sibling bonus is paid, when the first and second children are both younger than six. Larger families with longer gaps between each child are not considered. Since large families are more likely to have a quick succession of births, the policy feature might have a positive effect in reducing the poverty risk of large families.

To ensure that there is no interaction of the Siblings Bonus with the poverty risk of families, we have run some robustness checks. First, we estimated the share of families where at least one parent is on maternity/parental leave for small (3.0%), 3+ (13.2%), and 4+ (16.8%) families. Second, we estimated the poverty risk by integrating the maternity/parental leave variable in all model estimations. This was never significant in any bivariate nor multivariate model. Hence, based on the available data we can rule out that being on maternity/parental leave is a contributing factor to the poverty risk of families. Yet, there is one shortcoming associated with the used variable. The variable measures being on maternity or parental leave, but it does not measure benefit receipt. The benefit is a contribution-based benefit and parents on means-tested benefits would not receive the

benefit. Hence, the variable is not sufficient to reject the hypothesis altogether.

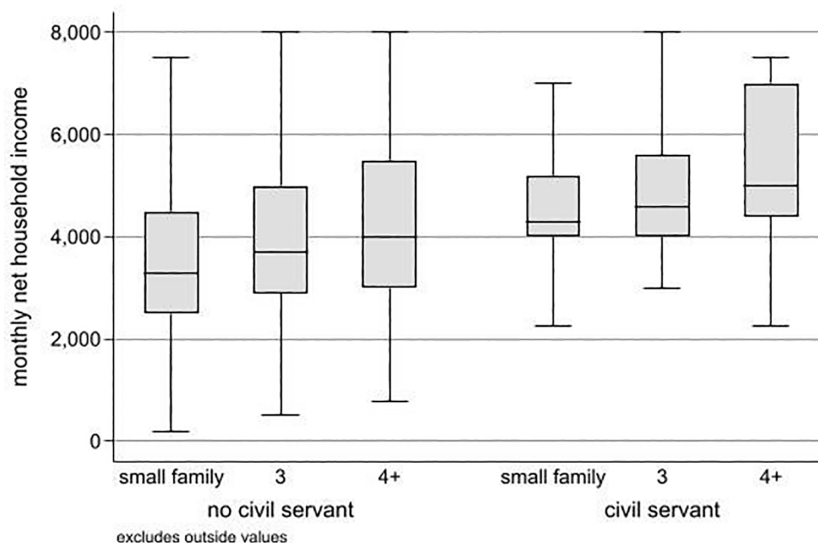
A.5 | ROBUSTNESS CHECKS CIVIL SERVANTS

Some public sector workers have child bonuses within their collective bargaining agreements (see BBVAnpG 2012/2013. Bundesgesetzblatt, Jahrgang 2012 Teil I (Nr. 33), 1670–1701). Overall, civil servants have a higher income (see Appendix A.6) and perfectly predict poverty outcomes. Therefore, we removed the variable *civil servants* from the full model.

The collective bargaining agreements for public sector employees have contained several child bonuses. For public sector employees these have been phased out after 2005. Although grandfather clauses mean that the children in our sample would still qualify for these bonuses, we cannot differentiate between public and private sector employees. For civil servants the child bonuses still apply and we can identify these in the NEPS sample. There are slightly varying rates between federal and state level civil servants and for illustrative purposes we focus on the federal rates. In 2013, federal civil servants received a family bonus for their marital status and/or the first child, which makes these hard to compare. More comparable are the child bonuses for the second (€105.71/month) and any third and subsequent child (€329.36/month). Compared to the child benefit, which civil servants receive on top, the rate for the third child is significantly higher.

To control for the added child bonus of civil servants in our model, we have plotted their mean income by large families (A.6). First of all, in families with at least one parent being a civil servant the monthly net income is almost 26% higher per month (3778 vs. 4750 Euro). Second, their income increases for large families as for non-civil servant families (A.6), but the increase for 4+ families is noticeable larger. Hence, we have some tentative evidence that the child bonus indeed increases incomes for large families of civil servants. Yet, the sample size of 168 civil servants limits any further multivariate analysis (i.e., 4+ families with civil servants $N = 9$). Due to their higher income only one family falls below the poverty threshold. When we run our multivariate models, the civil servant variable perfectly predicts the poverty risk and is therefore excluded in the full models. Further research on the relationship between large families and civil servants would require a larger sample size and should focus on other outcomes such as fertility or income inequality to have meaningful results.

A.6 | BOX PLOT OF HOUSEHOLD NET INCOME BY FAMILY TYPE AND CIVIL SERVANTS



A.7 | ROBUSTNESS CHECK FOR 4+ FAMILIES

Variables	Model 1: Demographics	Model 2: Labor market	Model 3: Full model	Model 4: No religion
4+ families	1.409*** (0.294)	1.306*** (0.288)	1.385*** (0.303)	1.015*** (0.289)
Religious parents	-0.0115 (0.209)	0.101 (0.211)	0.198 (0.227)	
Religious group (ref. no religion):				
Catholic	0.133 (0.278)	0.0610 (0.290)	0.269 (0.321)	
Protestant	0.0541 (0.284)	-0.0538 (0.290)	0.110 (0.306)	
Muslim	-0.473 (0.535)	-0.979* (0.525)	-1.296* (0.674)	
Other	0.276 (0.545)	0.126 (0.503)	-0.00842 (0.476)	
Migrant status	0.663*** (0.219)	0.718*** (0.239)	0.565** (0.261)	0.374* (0.194)
Single parent	1.347*** (0.213)	0.724** (0.305)	0.746** (0.319)	0.534** (0.249)
Parental education (ref. secondary)				
Post-secondary	-0.856*** (0.294)	-0.778*** (0.297)	-0.342 (0.360)	-0.480 (0.292)

(Continues)

Variables	Model 1: Demographics	Model 2: Labor market	Model 3: Full model	Model 4: No religion
Technical college	−1.071*** (0.242)	−0.777*** (0.244)	−0.358 (0.252)	−0.557*** (0.208)
University	−2.551*** (0.327)	−2.326*** (0.338)	−1.785*** (0.373)	−1.685*** (0.289)
Unemployed parent		1.637*** (0.532)	1.087* (0.617)	0.948** (0.456)
Parental work intensity (ref. Both FT)				
One FT other PT		0.242 (0.438)	0.375 (0.476)	0.253 (0.289)
One FT other none		1.186*** (0.415)	1.390*** (0.460)	1.034*** (0.275)
Other		1.919*** (0.426)	1.277*** (0.460)	1.093*** (0.295)
Homeownership			0.494 (0.349)	0.426 (0.292)
Asset quintile (ref. Third):				
First			1.404*** (0.454)	1.447*** (0.379)
Second			0.266 (0.347)	0.400 (0.275)
Fourth			−0.349 (0.497)	−0.238 (0.389)
Fifth			−0.104 (0.394)	0.0316 (0.335)
Benefit receipt			2.278*** (0.426)	2.036*** (0.319)
Constant	−1.655*** (0.256)	−2.709*** (0.406)	−4.067*** (0.629)	−3.348*** (0.446)
Observations	2730	2692	2570	3706

A.8 | ROBUSTNESS CHECK SAME SAMPLE

Variables	Model 1: Demographics	Model 2: Labor market	Model 3: Full model	Model 4: No religion
Family type (ref. small family)				
3 children only	0.568** (0.254)	0.446* (0.260)	0.580** (0.273)	0.533** (0.263)
4+ children	1.706*** (0.315)	1.502*** (0.307)	1.538*** (0.310)	1.452*** (0.333)
Religious parents	-0.125 (0.222)	-0.0286 (0.222)	0.154 (0.232)	
Religious group (ref. no religion)				
Catholic	0.151 (0.297)	0.102 (0.305)	0.276 (0.322)	
Protestant	0.0694 (0.305)	-0.0237 (0.308)	0.107 (0.310)	
Muslim	-0.511 (0.585)	-0.889 (0.547)	-1.379** (0.659)	
Other	0.345 (0.571)	0.204 (0.530)	-0.0398 (0.489)	
Migrant status	0.696*** (0.226)	0.736*** (0.247)	0.574** (0.261)	0.388 (0.252)
Single parent	1.446*** (0.221)	0.826*** (0.317)	0.776** (0.323)	0.872*** (0.330)
Parental education (ref. secondary)				
Post-secondary	-0.727** (0.309)	-0.658** (0.307)	-0.333 (0.364)	-0.348 (0.371)
Technical college	-1.063*** (0.249)	-0.772*** (0.250)	-0.396 (0.254)	-0.384 (0.251)
University	-2.558*** (0.363)	-2.303*** (0.367)	-1.830*** (0.381)	-1.784*** (0.376)
Unemployed parent		1.670*** (0.518)	0.942 (0.586)	0.910 (0.563)
Parental work intensity (ref. Both FT)				
One FT other PT		0.183 (0.460)	0.346 (0.477)	0.488 (0.466)
One FT other none		1.168*** (0.434)	1.348*** (0.457)	1.440*** (0.442)
Other		1.855*** (0.448)	1.226*** (0.462)	1.274*** (0.462)
Homeownership			0.474 (0.357)	0.498 (0.362)

(Continues)

Variables	Model 1: Demographics	Model 2: Labor market	Model 3: Full model	Model 4: No religion
Asset quintile (ref. Third):				
First			1.423*** (0.459)	1.393*** (0.472)
Second			0.265 (0.345)	0.242 (0.344)
Fourth			-0.306 (0.489)	-0.289 (0.488)
Fifth			-0.0818 (0.388)	-0.0176 (0.396)
Benefit receipt			2.316*** (0.435)	2.222*** (0.415)
Constant	-1.861*** (0.277)	-2.847*** (0.435)	-4.129*** (0.620)	-3.993*** (0.615)
Observations	2570	2570	2570	2570